REMARKS

Claims 1-9 have been canceled, and claim 10 has been amended to more distinctly point out specific features of Applicant's invention. The subject matter of claim 2 has been incorporated into claim 1 so as to define the relative thickness of the transparent dielectric layer. Moreover, the three-dimensional character of the analyte-containing domains has now been defined as being of a thickness equal to or greater than about one-half of an optical emission wavelength of the photon energy, support for which is found on page 2, lines 11-13 where 3D biochips having such domed spots are described. It is further now recited that the analyte is distributed throughout the domain, as likewise described on page 2 and on page 8, lines 4-7, as well as in the Example on page 11. The final addition is to more particularly identify the light energy emitted via spontaneous emission scattering or other process as such that occurs from the spurious contaminants that can become attached to the exposed surface of the dielectric layer atop which the domed three-dimensional microspot domains are attached. Support for the final addition in the whereby clause is found in original claim 12.

Claims 11, 13 and 14 have been amended so as to obviate the objections set forth by the Examiner, and claim 12 has been canceled in view of its addition to claim 10.

Support for new claims 20, 21 and 22 is respectively found in original claims 7, 4, 5 and 6. New claim 23 is patterned after claim 10 but more specifically refers to the top flat surface of the dielectric layer and to the diminishment of signals from sources of potential background contamination at the top flat surface. New claim 24 is similar to claim 11 and further specifies that the location is above the top surface, as is clear

throughout the description and mentioned at page 5, lines 12-13. New claim 25 is patterned after claim 13. New claim 26 is patterned after claim 14.

With the cancellation of claims 1-9, the rejections under 35 U.S.C. § 102 are no longer applicable.

The invention as defined by amended claim 10 would not be obvious from the disclosure of U.S. Patent No. 5,776,785 to Lin et al. (hereinafter Lin et al.) in view of the disclosure of U.S. Patent No. 5,418,136 to Miller et al. (hereinafter Miller et al.).

Lin et al are concerned with surface plasmon resonance (SPR); as more particularly specified at column 4, lines 64-67, they are concerned with surface plasmon waves in the conduction band of electrons near the surface of a metal semiconductor and employ mechanisms for detecting changes in those waves which are caused by the presence of surface-adsorbed molecules. In Example 1, beginning at column 11, a glass hemisphere was optically coupled to a glass plate to create an arrangement such as that shown in FIG. 2 which was used to generated SPR fluorescence in order to detect fluorescent molecules at a liquid/solid phase interface. The mention of the optional use of a dielectric overlayer is merely a generalization, and there is no specificity taught such as that recited in amended claim 10.

Miller et al. claims an assay device where there is an optically active receptive surface comprising a thin interference film which is a part of a hinged container where first and second absorbent materials are arranged. The Miller et al. device is directed to the creation of eye-visible, color-signal generation where there is color interference that occurs, like viewing oil on water or the like due, to local variations in material thickness.

The destructive interference mentioned by Miller et al. at column 19, lines 10-20, as can be seen from FIG. 1, is simply their way of creating an object that is non-reflective of visible light rays; they are no way concerned with tuning out, i.e. canceling, signals generated by spurious contaminants at the surface. Although Miller et al. mention that receptive materials may be applied by a variety of coating methods, including ink jet printing, such coatings would produce a very thin film for the so-called receptive layer, i.e. similar to a film of oil on water. For example, in Example 9, trinitrobenzyne sulfonic acid was used for the receptive material, and the visually discernible color change to a red-purple color was detected at that region which was stated to be approximately 20 Angstroms thick. Such thickness is in the range of one-five-hundredth of a micron, and it is truly two-dimensional. It is clearly not the equivalent of Applicant's three-dimensional analyte-containing domains.

Miller et al. are concerned only with assays that employ such a thin film upon a surface. The examples are directed to coating surfaces with single receptive materials, generally in the form of thin films generated from an aqueous solution or the like. Such is clearly not the equivalent of Applicant's claimed domed domains which, in the example, are provided by polyurethane-based hydrogel from pins of sizes measured in hundreds of microns, which might be of a thickness several times the reference wavelength. In conclusion, Miller et al. contains no disclosure to supply the above-stated deficiency in Lin et al., as Miller et al. are concerned only with color interference. The so-called attachment layer upon which the Miller et al. receptive material is placed is described as one that optimizes the functional density, stability and viability of the thin

film receptive material, and more specifically one that simply does not interfere with the desired thin film physical properties of the overall test surface, see column 25, lines 1-3.

For the reasons set forth above, it is submitted that the rejection under 35 U.S.C. § 103 should be reconsidered in the light of the amendments and should be withdrawn.

Claim 23 should be allowed for the same reasons as set forth with respect to claim 10. Claims 13, 14 and 15 have now been amended so as to positively state that the optical detection system includes certain means for imaging and for integrating brightness which can be used for quality assurance confirmation. Thus, these dependent claims further distinguish the claimed invention from the teachings of Lin et al., which are directed to SPR devices, and from those of Miller et al., which are directed to optical color change detection devices. Claims 25 and 26 are similar in this respect, and they are accordingly further allowable over the disclosures of either of the two cited references.

In view of the foregoing amendments and remarks, and in the absence of more pertinent prior art, it is submitted that independent claims 10 and 23, and dependent claims 11, 13-15 and 24-26 should be allowed, and allowance thereof is respectfully requested. Upon allowance of claim 10, it is requested that the withdrawn claims to the method of using the system be examined under the procedure currently in effect in the USPTO, and it is submitted that these three dependent claims should likewise be allowed.

It is believed that this paper places the application in condition for allowance, and favorable action is courteously solicited.

Respectfully submitted,

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